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FOUNDRY-THELEN REID BROWN RAYSMAN & STEINER LLP			DALENCOURT, YVES	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/982,106

Applicant(s)

JAIN ET AL.

Examiner

Yves Dalencourt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-44, 46, 47 and 50-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-24, 31-37, 40-44, 53, 56, 57, 61, 64 and 65 is/are allowed.
- 6) ☒ Claim(s) 12-17, 25-30, 38-39, 46-52, 54-55, 58-60, 62-63, and 66-70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is responsive to amendment filed 07/23/2007.

Response to Amendment

The Examiner has acknowledged the amended claims 38 - 40.

Response to Arguments

Applicant's arguments filed on 07/23/2007 have been fully considered but they are not persuasive.

Regarding to Applicant's argument (pages 26 - 27), that Hoffman et al does not disclose receiving a control message at a layer 2 switch of said VLAN, said control message sent by a layer 3 router. The Examiner respectfully disagrees with Applicant's assertion because Hoffman discloses that "The forwarding logic 52 also searches the forwarding memory 40 for matches at layer 2 and/or layer 3. The search may also include some information at layer 4. In the preferred embodiment, the forwarding memory 40 is a content-addressable memory (CAM) storing information about both layer 2 and layer 3 switching, and may contain some layer 4 information. If a match is found, data stored in associated memory 42 and pointed to by the matching entry in the forwarding memory 40 serves to define the actions that the switching element 36 must do to forward the packet to the appropriate destination(s) "(col. 9, lines 37 - 47). Hoffman further discloses that one feature of the invention is the ability to bridge flows,

that is, use the forwarding memory to quickly forward layer 2 packets using layer 3 functionality through the network element 12.

Hoffman also discloses that the network element 12 processes packets for a worst-case scenario of a steady stream of 64-byte packets entering all input ports 50 simultaneously. If the layer 3 information is not contained in the forwarding memory 40, the packet is forwarded using layer 2 information and then processed according to conventional layer 3 processing by software in the processor 32.

In response to Applicant's argument (page 36) that Tang does not disclose the explicit source lookup key that comprises an incoming port for the control message. The Examiner respectfully disagrees with the Applicant's remarks because any element of each row in the multicast routing table maybe used as a key. Note that even though protocol type is not included in the table, Tang's feature still meets the limitation, because the limitation does not require the presence of the port type. The limitation prescribes some "combination" of "source network address, destination network address, and incoming port." See again fig. 3).

In response to applicant's argument that there is no suggestion to combine the references (page 25), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

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It seems that applicants are interpreting the claims very narrow without considering the broad teaching of the references (Gleeson et al and Tang et al) used in the rejection. Applicants are reminded that the examiner is entitled to the broadest reasonable interpretation of the claims. The Applicants always have the opportunity to amend the claims during prosecution and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater 162 USPQ 541,550-51 (CCPA 1969).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 12 – 17, 25 – 30, 38 – 39, 46 – 47, 51 – 52, 54 – 55, 58 – 60, 62 – 63, and 66 – 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang et al (Pat. No. US 6,839,348, Tang hereinafter). Tang incorporates by reference Gleeson et al. (Pat. No 5,959,989, Gleeson hereinafter) in view of Hoffman et al (Pat. No. US 6,094,435, Hoffman hereinafter).

With respect to claim 12, Gleeson shows a method comprising: updating a source-group data structure using information from the control message, the source-group data structure containing data regarding a multicast group [See Fig. 2c of Gleeson, which is a "source-group data structure." It contains multicast group address. See lines 21-32 in column 2 of Gleeson. See lines 30-35 in column 16 for the step of updating the data structure]; and adding an outgoing port index to data source-group data structure, said outgoing port index identifying a port that received the control message [See Fig. 2C, which lists a port index ('port number') in the table. Inserting the source group necessarily adds a port number, because the data structure includes a field for the "port index."].

Tang and Gleeson show substantially all the limitations, but fail to specifically show the step of receiving a control message at a layer 2 switch of said VLAN, said control message sent by a layer 3 router.

However, Hoffman discloses an analogous system and method for a quality of service in a multi-layer network element, which discloses the step of receiving a control message at a layer 2 switch of said VLAN, said control message sent by a layer 3 router

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(figs. 1 – 4; col. 7, line 32 through col. 8, line 61; col. 9, lines 27 – 47, col. 11, line 3 through col. 12, line 6).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Tang and Gleeson by receiving a control message at a layer 2 switch of said VLAN, said control message sent by a layer 3 router as evidenced by Hoffman for the purpose of intelligently forwarding received packets to one or more appropriate output ports, thereby providing a system and method for handling multicast packets quickly and efficiently in a multi-layer network element.

With respect to claim 13, Hoffman and Gleeson show substantially all the limitations in claim 12, and Gleeson further shows that source-group data structure is a source-group table [See Fig. 2C. Source-group data structure, as it is evident from Fig. 2C, is a table].

With respect to claim 14, Hoffman and Gleeson show substantially all the limitations in claim 12, and Gleeson further shows a further step of creating an entry in an outgoing port lookup table, said entry associating said outgoing port index to said port that received the control message [See Fig. 2B, which shows "port index" ('port number') and the port (designated by MAC address). Creating an entry involves updating the table. See lines 3035 in column 16].

With respect to claim 15, Hoffman and Tang show substantially all the limitations in claim 12, and Tang further shows searching in a forwarding table for a forwarding entry having a destination hardware address matching a destination hardware address for a multicast group indicated by the control message [See from line 35, column 15 to

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line 3 in column 16 of Tang]; and updating said forwarding entry in said forwarding table if a destination hardware address matching a destination hardware address for said multicast group is found [See from line 35, column 15 to line 3 in column 16 of Tang].

With respect to claim 16, Tang and Gleeson show a method comprising deriving an explicit source lookup key from the control message [See lines 50-67 in column 16 of Tang. S4, which is the specific source address, is the "source lookup key."]; and retrieving an outgoing port index associated with an entry in a session data structure, said entry corresponding to said explicit source lookup key ["Session data structure" are the rows, in the multicast routing table ("forwarding table"). Each entry of the outgoing interface list is associated with an interface ("outgoing port index") shown in Fig. 3. The retrieval is performed by looking up the forwarding table]; and updating an outgoing lookup table entry corresponding to said outgoing port index with information regarding designated devices in said multicast group indicated by the control message [See Fig. 3 of Tang. The outgoing lookup table entry is either IIF or OIF in the multicast routing table. It is updated in accordance with the description, starting at line 16, column 16 to line 17, in column 19].

Tang and Gleeson show substantially all the limitations, but fail to specifically show the step of receiving a control message at a layer 2 switch of said VLAN, said control message sent by a layer 3 router.

However, Hoffman discloses an analogous system and method for a quality of service in a multi-layer network element, which discloses the step of receiving a control message at a layer 2 switch of said VLAN, said control message sent by a layer 3 router

(figs. 1 – 4; col. 7, line 32 through col. 8, line 61; col. 9, lines 27 – 47, col. 11, line 3 through col. 12, line 6).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Tang and Gleeson by receiving a control message at a layer 2 switch of said VLAN, said control message sent by a layer 3 router as evidenced by Hoffman for the purpose of intelligently forwarding received packets to one or more appropriate output ports, thereby providing a system and method for handling multicast packets quickly and efficiently in a multi-layer network element.

With respect to claim 17, Hoffman, Tang, and Gleeson show substantially all the limitations in claim 16, and Gleeson further shows session data structure is a session table. The set of rows, each containing explicit source address in the forwarding address, correspond to a "session table."

Claims 25-30 substantively incorporate the limitations of claims 12 - 17, but in apparatus form rather than in method form. The reasons for the rejection of claims 12-17 apply to claims 25-30.

Claims 38-39 substantively incorporate the limitations of claims 12 and 16, but in software product form rather than in method form. The reasons for the rejection of claims 12 and 16 apply to claims 38-39.

With respect to claim 46, Tang shows deriving an explicit source lookup key from the control packet [See lines 27-49, column 16. S4 is the source lookup key and it is an address]; searching a session data structure for a session entry having an explicit source lookup key matching the derived explicit source lookup key ["Session data

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structure" correspond to the rows, in the multicast routing table ("forwarding table").

Each entry of the outgoing interface list is associated with an interface ("outgoing port index") shown in Fig. 3. The retrieval is performed upon searching the session data structure. See from lines 27-49, column 16.]; if a session entry having an explicit source lookup key matching the derived explicit source lookup key is found, revising an associated outgoing port in the session entry to match an incoming port for the control message [See Fig. 3 of Tang. The outgoing lookup table entry is either IIF or OIF in the multicast routing table. It is revised in accordance with the description, starting at line 16, column 16 to line 17, in column 19].

Tang and Gleeson show substantially all the limitations, but fail to specifically show the step of receiving a control message at a layer 2 switch of said VLAN, said control message sent by a layer 3 router.

However, Hoffman discloses an analogous system and method for a quality of service in a multi-layer network element, which discloses the step of receiving a control message at a layer 2 switch of said VLAN, said control message sent by a layer 3 router (figs. 1 – 4; col. 7, line 32 through col. 8, line 61; col. 9, lines 27 – 47, col. 11, line 3 through col. 12, line 6).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Tang and Gleeson by receiving a control message at a layer 2 switch of said VLAN, said control message sent by a layer 3 router as evidenced by Hoffman for the purpose of intelligently forwarding received packets to

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one or more appropriate output ports, thereby providing a system and method for handling multicast packets quickly and efficiently in a multi-layer network element.

With respect to claim 47, Tang shows that the explicit source lookup key comprises a multicast source network address, a destination network address, and incoming port for the control message and a protocol type. See Fig. 3. Any element of each row in the multicast routing table maybe used as a key. Note that even though protocol type is not included in the table, Tang's feature still meets the limitation, because the limitation does not require the presence of the port type. The limitation prescribes some "combination" of "source network address, destination network address, and incoming port."

Claim 50 substantively incorporates the limitations of claim 45, and the reasons for the rejection of claim 45 apply to claim 50.

Claims 51 – 52, 54 – 55, 58 – 60, 62 – 63, and 66 – 70 substantively incorporates the limitations of the above rejected claims, and the reasons for the rejection of these claims mentioned above, apply to claims 51 – 52, 54 – 55, 58 – 60, 62 – 63, and 66 – 70.

Allowable Subject Matter

Claims 18 – 24, 31 – 37, 40 – 44, 53, 56 – 57, 61, 64, and 65 are allowed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yves Dalencourt whose telephone number is (571) 272-3998. The examiner can normally be reached on M-TH 7:30AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

February 12, 2008



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